1. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{4}{7x-5}+3=\frac{-3}{42x-30}$$

A. $x_1 \in [0.18, 0.4]$ and $x_2 \in [-0.5, 2.5]$

B. $x \in [-1.11, -0.8]$

C. All solutions lead to invalid or complex values in the equation.

D. $x_1 \in [-1.11, -0.8]$ and $x_2 \in [-0.5, 2.5]$

E. $x \in [-1.5, 1.5]$

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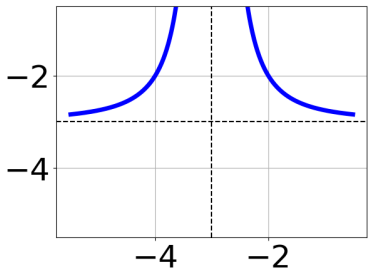
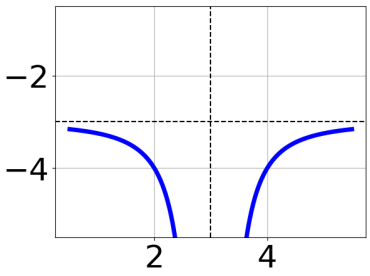
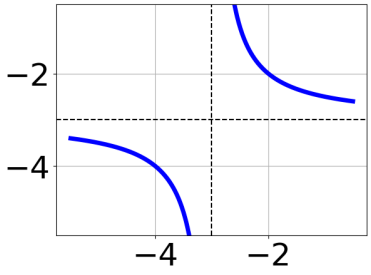
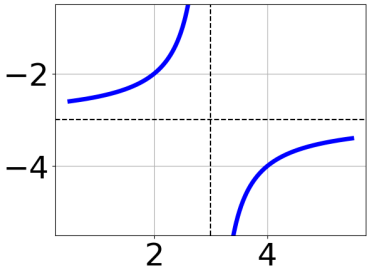
2. Choose the graph of the equation below.

$$f(x)=\frac{1}{(x+3)^2}-3$$

A.


C.


B.


D.


E. None of the above.

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3. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{3x}{-2x+6}+\frac{-4x^2}{-8x^2+28x-12}=\frac{-4}{4x-2}$$

A. $x_1 \in [-1.06, -0.31]$ and $x_2 \in [1.54, 2.91]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [2.69, 3.2]$ and $x_2 \in [0.49, 1.23]$

D. $x \in [0.38, 1.49]$

E. $x \in [2.69, 3.2]$

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4. Determine the domain of the function below.

$$f(x) = \frac{5}{12x^2 + 2x - 24}$$

A. All Real numbers except $x = a$, where $a \in [-1.5, -0.5]$

B. All Real numbers except $x = a$, where $a \in [-24, -20]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.5, -0.5]$ and $b \in [-0.67, 2.33]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-24, -20]$ and $b \in [11, 13]$

E. All Real numbers.

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5. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4}{-6x - 5} + -8 = \frac{5}{-12x - 10}$$

A. $x_1 \in [-0.7, 0.3]$ and $x_2 \in [-0.03, 2.97]$

B. $x_1 \in [-0.7, 0.3]$ and $x_2 \in [-0.65, 0.35]$

C. All solutions lead to invalid or complex values in the equation.

D. $x \in [-0.03, 3.97]$

E. $x \in [-0.7, 0.3]$

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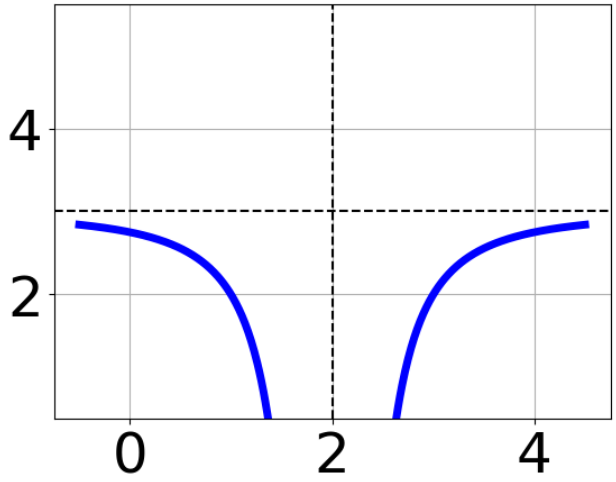
6. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x-2} + 3$

B. $f(x) = \dfrac{1}{(x+2)^2} + 3$

C. $f(x) = \dfrac{-1}{(x-2)^2} + 3$

D. $f(x) = \dfrac{1}{x+2} + 3$

E. None of the above

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7. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-2x}{-4x-4} + \frac{-4x^2}{-20x^2-12x+8} = \frac{5}{5x-2}$$

A. $x \in [-0.13, 0.5]$

B. All solutions lead to invalid or complex values in the equation.

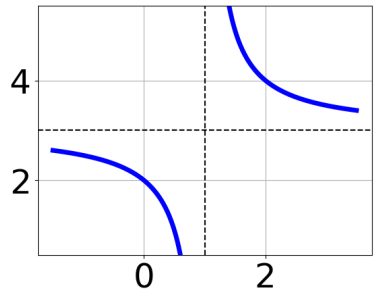
C. $x_1 \in [-0.87, -0.46]$ and $x_2 \in [-3.5, -0.9]$

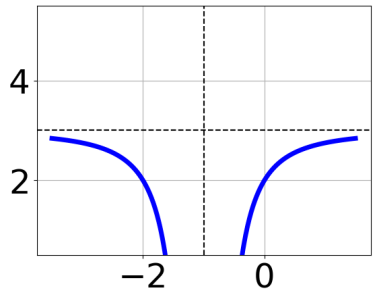
D. $x_1 \in [-0.87, -0.46]$ and $x_2 \in [1.8, 3.3]$

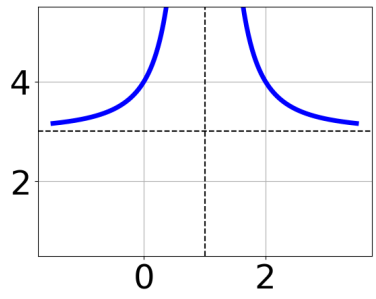
E. $x \in [2.16, 3.28]$

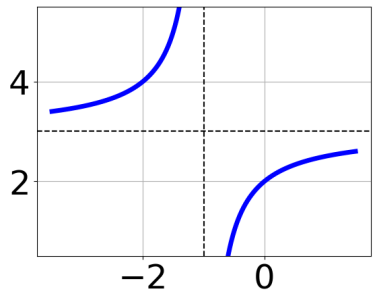
8. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x+1} + 3$$

A.


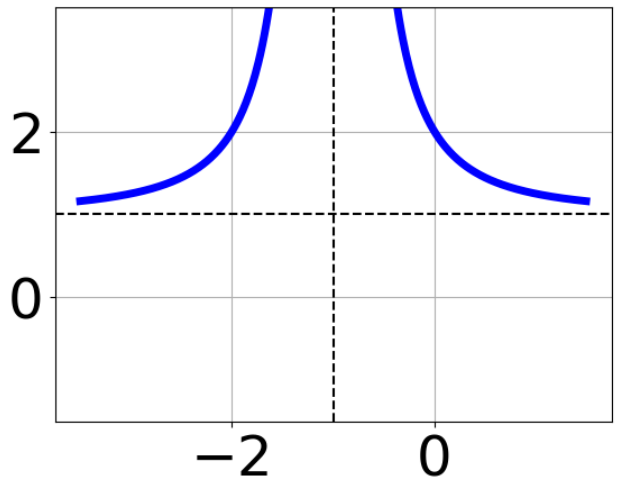
C.


B.


D.


E. None of the above.

9. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x+1)^2} + 1$

B. $f(x) = \dfrac{1}{x+1} + 1$

C. $f(x) = \dfrac{-1}{x-1} + 1$

D. $f(x) = \dfrac{-1}{(x-1)^2} + 1$

E. None of the above

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10. Determine the domain of the function below.

$$f(x) = \frac{6}{9x^2 - 25}$$

A. All Real numbers except $x = a,$ where $a \in [-4.67, 1.33]$

B. All Real numbers.

C. All Real numbers except $x = a$ and $x = b,$ where $a \in [-4.67, 1.33]$ and $b \in [-0.33, 3.67]$

D. All Real numbers except $x = a$ and $x = b,$ where $a \in [-16, -11]$ and $b \in [15, 20]$

E. All Real numbers except $x = a,$ where $a \in [-16, -11]$
